AMENDMENTS

IN THE CLAIMS:

Please amend claim 1, 12, and 20 as follows below:

1. (Currently Amended) A method of transferring data between a host and a network, the method comprising

providing a plurality of data transfer queues in a shared memory, the individual data transfer queues comprising:

~~a priority level,~~

a descriptor ring comprising one or more descriptors indicating a memory buffer location comprising data to be transferred between the host and the network ~~within the shared memory,~~; ~~and~~

one or more entries, wherein ~~indicating a number of memory buffers located within the shared memory from which the host can read or write the data,~~ ~~the~~ individual entries comprise information ~~being~~ associated with the data to be transferred between the host and the network~~,~~; and

a priority level,

wherein a first data transfer queue having a first descriptor ring has a higher priority level than a second data transfer queue having a second descriptor ring; ~~and~~

~~retrieving a part of the data, to be transferred from the host to the network, from a memory buffer location within the shared memory indicated by the one or more descriptors;~~

transferring the data between the host and the network by transferring data associated with ~~entries of the first data transfer queue~~ descriptors stored in a first descriptor ring before transferring data associated with ~~entries of the second data transfer queue~~ descriptors stored in a second descriptor ring based on the priority levels of the first and second data queues.~~and~~

~~storing a different part of the data, transferred from the network to the host, in the memory buffer location within the shared memory indicated by the one or more descriptors.~~

2. (Previously Presented) The method of claim 1, wherein each of the plurality of data transfer queues has a unique priority level, and wherein transferring the data between the host and the network comprises transferring data associated with entries of a particular data transfer queue only after all data associated with entries of higher priority data transfer queues has been transferred.

3. (Previously Presented) The method of claim 2:

wherein providing the plurality of data transfer queues comprises providing a plurality of receive descriptor rings, storing at least one of the one or more data descriptors indicating locations of incoming data buffers in the shared memory, in the shared memory, the individual receive descriptor rings comprising a unique priority level and one or more receive descriptors which control a transfer of one or more data frames received from the network that are to be transferred to the host; and

wherein transferring the data between the host and the network comprises transferring one or more data frames associated with one or more receive descriptors of a particular receive descriptor ring only after all data associated with receive descriptors of higher priority receive descriptor rings has been transferred.

4. (Previously Presented) The method of claim 1, wherein each of the plurality of data transfer queues has a unique priority level, and wherein transferring the data between the host and the network comprises:

determining a number of data frames associated with entries of data transfer queues of a higher priority than a particular data transfer queue that have been transferred while the particular data transfer queue was requesting service; and

transferring data associated with entries of the particular data transfer queue if all data associated with the entries of data transfer queues of a higher priority has been transferred or if the number of data frames is greater than or equal to a threshold value associated with the particular data transfer queue.

5. (Previously Presented) The method of claim 4, wherein determining the number of data frames associated with the entries of data transfer queues of a higher priority comprises:

providing individual counters used to determine whether the data stored in an associated transmit descriptor is ready to be transferred, wherein the individual counters are provided for all but a highest priority data transfer queue;

providing a threshold value for the particular data transfer queue;

clearing a counter for the particular data transfer queue when data associated with one of the entries of the particular data transfer queue is transferred between the host and the network; and

incrementing the counter for the particular data transfer queue when the particular data transfer queue is requesting service and a data frame associated with one of the entries of data transfer queues of a higher priority is transferred between the host and the network.

6. (Original) The method of claim 5, wherein threshold values for different data transfer queues are different.

7. (Previously Presented) The method of claim 5:

wherein providing the plurality of data transfer queues comprises providing a plurality of transmit descriptor rings, storing at least one of the one or more data descriptors indicating locations of outgoing data buffers in the shared memory, in the shared memory, the individual transmit descriptor rings comprising a unique priority level and one or more transmit descriptors which control a transfer of one or more data frames received from the host that are to be transferred to the network; and

wherein transferring the data between the host and the network comprises transferring data associated with transmit descriptors of a particular transmit descriptor ring if all data associated with transmit descriptors of higher priority transmit descriptor rings has been transferred or if the number of data frames associated with the entries of data transfer queues of a higher priority is greater than or equal to a threshold value associated with the particular transmit descriptor ring.

8. (Previously Presented) The method of claim 4:

wherein providing the plurality of data transfer queues comprises providing a plurality of transmit descriptor rings in the shared memory, the individual transmit descriptor rings comprising a unique transmit priority level and one or more transmit descriptors, the transmit descriptors being associated with one or more data frames received from the host that are to be transferred to the network; and

wherein transferring the data between the host and the network comprises transferring data associated with transmit descriptors of a particular transmit descriptor ring if all data associated with transmit descriptors of higher transmit priority transmit descriptor rings has been transferred or if the number of data frames associated with entries of data transfer queues of a higher priority is greater than or equal to a threshold value associated with the particular transmit descriptor ring.

9. (Previously Presented) The method of claim 8:

wherein providing the plurality of data transfer queues further comprises providing a plurality of receive descriptor rings in the shared memory, the individual receive descriptor rings comprising a unique receive priority level and one or more receive descriptors, the receive descriptors being associated with one or more data frames received from the network that are to be transferred to the host; and

wherein transferring the data between the host and the network comprises transferring one or more data frames associated with one or more receive descriptors of a particular receive descriptor ring only after all data associated with receive descriptors of higher receive priority receive descriptor rings has been transferred.

10. (Previously Presented) The method of claim 1, wherein providing the plurality of data transfer queues comprises:

providing a plurality of receive descriptor rings, storing at least one of the one or more data descriptors indicating locations of incoming data buffers in the shared memory, in the shared memory, the individual receive descriptor rings comprising a unique receive priority level and one or more receive descriptors which control a transfer of one or more data frames received from the network that are to be transferred to the host, and

providing a plurality of transmit descriptor rings, storing at least one of the one or more data descriptors indicating locations of outgoing data buffers in the shared memory, in the shared memory, the individual transmit descriptor rings comprising a unique transmit priority level and one or more transmit descriptors which control a transfer of one or more data frames received from the host that are to be transferred to the network; and

wherein transferring the data between the host and the network comprises:

transferring one or more data frames associated with one or more receive descriptors of a particular receive descriptor ring only after all data associated with

receive descriptors of higher receive priority receive descriptor rings has been transferred, and

transferring data associated with transmit descriptors of a particular transmit descriptor ring if all data associated with transmit descriptors of higher transmit priority transmit descriptor rings has been transferred or if a number of data frames associated with entries of data transfer queues of a higher priority is greater than or equal to a threshold value associated with the particular transmit descriptor ring.

11. (Original) The method of claim 1, further comprising providing an entry to a particular data transfer queue according to the data associated with the entry.

12. (Currently Amended) A system for transferring data between a host and a network using a shared memory, the system comprising:

a plurality of data transfer queues in a shared memory, the individual data transfer queues comprising one or more descriptors indicating a memory buffer location storing the data to be transferred between the host and the network, and one or more entries, and the individual entries being associated with data, located in a memory buffer, to be transferred between the host and the network; and

a network interface system coupled with the shared memory, the host, and the network, the network interface system comprising a descriptor management system storing a plurality of priority levels~~, the priority levels being~~ individually associated with one of the data transfer queues, wherein a first data transfer queue has a higher priority level than a second data transfer queue, and wherein the network interface system transfers data between the host and the network by transferring data associated with entries of the first data transfer queue before transferring data associated with entries of the second data transfer queue based on the priority levels of the first and second data queues.

13. (Original) The system of claim 12, wherein each of the data transfer queues has a unique priority level.

14. (Previously Presented) The system of claim 13, wherein the plurality of data transfer queues comprises a plurality of receive descriptor rings in the shared memory, the individual receive descriptor rings comprising a unique receive priority level and one or more receive descriptors, the receive descriptors being associated with one or more data frames received from the network that are to be transferred to the host, and wherein the descriptor management system provides a receive descriptor to a particular receive descriptor ring according to the data associated with the receive descriptor.

15. (Original) The system of claim 13, wherein the plurality of data transfer queues comprises a plurality of receive descriptor rings in the shared memory, the individual receive descriptor rings comprising a unique receive priority level and one or more receive descriptors, the receive descriptors being associated with one or more data frames received from the network that are to be transferred to the host, and wherein the host reads one or more data frames from the shared memory that are associated with one or more receive descriptors of a particular receive descriptor ring only after all data associated with receive descriptors of higher priority receive descriptor rings has been read from the shared memory.

16. (Previously Presented) The system of claim 12:

wherein the plurality of data transfer queues comprises a plurality of transmit descriptor rings in the shared memory, the individual transmit descriptor rings comprising a unique transmit priority level and one or more transmit descriptors, the transmit descriptors being associated with one or more data frames received from the host that are to be transferred to the network;

wherein the descriptor management system comprises a plurality of counters individually corresponding to all but a highest priority transmit descriptor ring;

wherein the network interface system transfers data associated with transmit descriptors of a particular transmit descriptor ring from the shared memory to the network if all data associated with transmit descriptors of higher priority transmit descriptor rings has been transferred or if a value of a counter corresponding to the particular transmit descriptor ring is greater than or equal to a threshold value associated with the particular transmit descriptor ring;

wherein the descriptor management system clears the counter for the particular transmit descriptor ring when data associated with a transmit descriptor of the particular transmit descriptor ring is transferred from the shared memory to the network; and

wherein the descriptor management system increments the counter for the particular transmit descriptor ring when a data frame associated with a transmit descriptor of a higher priority transmit descriptor ring is transferred from the shared memory to the network.

17. (Original) The system of claim 16, wherein the host provides a plurality of threshold values to the descriptor management system, the threshold values individually corresponding to all but the highest priority transmit descriptor ring.

18. (Previously Presented) The system of claim 16, wherein the host provides data to the shared memory and provides a corresponding transmit descriptor to the particular transmit descriptor ring according to a desired transmit priority for the data.

19. (Original) The system of claim 16, wherein the plurality of data transfer queues further comprises a plurality of receive descriptor rings in the shared memory, the individual receive descriptor rings comprising a unique receive priority level and one or more receive descriptors, the receive descriptors being associated with one or more data frames received from the network that are to be transferred to the host, and wherein the host reads one or more data frames from the shared memory that are associated with one or more receive descriptors of a particular receive descriptor ring

only after all data associated with receive descriptors of higher priority receive descriptor rings has been read from the shared memory.

20. (Currently Amended) A network interface system for interfacing a host with a network, the network interface system comprising:

a descriptor management system storing a plurality of priority levels, the priority levels being individually associated with one of a plurality of data transfer queues in a shared memory, wherein a first data transfer queue has a higher priority level than a second data transfer queue, and wherein the network interface system transfers data between a buffer memory located within the host and the network by transferring data associated with entries of the first data transfer queue before transferring data associated with entries of the second data transfer queue based on the priority levels of the first and second data queues.

21. (Previously Presented) The network interface system of claim 20, wherein each of the data transfer queues has a unique priority level.

22. (Previously Presented) The network interface system of claim 21, wherein the plurality of data transfer queues comprises a plurality of receive descriptor rings in the shared memory, the individual receive descriptor rings corresponding to a unique receive priority level and comprising one or more receive descriptors, the receive descriptors being associated with one or more data frames received from the network that are to be transferred to the host, and wherein the descriptor management system provides a receive descriptor to a particular receive descriptor ring according to the data associated with the receive descriptor.

23. (Previously Presented) The network interface system of claim 20:

wherein the plurality of data transfer queues comprises a plurality of transmit descriptor rings in the shared memory, the individual transmit descriptor rings comprising a unique transmit priority level and one or more transmit descriptors, the transmit descriptors being associated with one or more data frames received from the host that are to be transferred to the network;

wherein the descriptor management system comprises a plurality of counters individually corresponding to all but a highest priority transmit descriptor ring;

wherein the network interface system transfers data associated with transmit descriptors of a particular transmit descriptor ring from the shared memory to the network if all data associated with transmit descriptors of higher priority transmit descriptor rings has been transferred or if a value of a counter corresponding to the particular transmit descriptor ring is greater than or equal to a threshold value associated with the particular transmit descriptor ring;

wherein the descriptor management system clears the counter for the particular transmit descriptor ring when data associated with a transmit descriptor of the particular transmit descriptor ring is transferred from the shared memory to the network; and

wherein the descriptor management system increments the counter for the particular transmit descriptor ring when a data frame associated with a transmit descriptor of a higher priority transmit descriptor ring is transferred from the shared memory to the network.

24. (New) The method of claim 1, wherein the one or more entries respectively comprise a VLAN tag control information and a message field count indicating the number of bytes received from the network.